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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,861	03/30/2004	Thomas Hubert Van Steenkiste	DP-308959	3460

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EXAMINER	
BAREFORD, KATHERINE A	

ART UNIT	PAPER NUMBER
1762	

DATE MAILED: 05/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/812,861	VAN STEENKISTE ET AL.	
	Examiner	Art Unit	
	Katherine A. Bareford	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 March 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The amendment of March 14, 2005 has been received and entered.

Priority

1. Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged. However, the provisional application upon which priority is claimed fails to provide adequate support under 35 U.S.C. 112 for claims 1-22 of this application. The provisional application does not indicate (1) that the mask is pressed against the plastic type material as required by claim 1, part d) and (2) that the particle size can be 250 to 1400 microns as required by claim 12. Therefore, as to claims 1-22, priority only extends to the filing date of the U.S. application, March 30, 2004.

Claim Objections

2. The objection to claims 1 and 12 because of not indicating that kinetic spraying is required is withdrawn due to applicant's amendments to the claims of March 14, 2005.

Claims

3. The Examiner notes that claim 1, part f) and claim 12, part e) now require the "kinetic spraying of the particles". The Examiner understands by "kinetic spraying" that applicant means that a kinetic spray process as described in paragraph [0004] of the specification is performed, whereby the particles are accelerated to a velocity sufficient to adhere to the substrate but do not melt or thermally soften prior to impingement on the substrate. If applicant disagrees, he should so indicate on the record.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-6 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rayburn (US 3731354) in view of Tawfik et al (US 2004/0101738), Van Steenkiste et al (US 6283386) (hereinafter Van Steenkiste '386) and Hathaway (US 2599710).

Rayburn teaches a method of spray coating a substrate covered by a plastic type material. Column 1, lines 50-60. Rayburn teaches making a rolled capacitor made from a two side metallized plastic dielectic material with thin coating of plastic material applied to head of the metallized layers for holding the capacitor together. Column 1, lines 50-60. After the capacitor is rolled, the plastic covered ends are sprayed with a high velocity spray of molten metal, preferably aluminum, which embeds itself in the plastic coatings between the metallized layers so as to contact the surface as well as the ends of the electrodes, but does not substantially penetrate the dielectric strip substrate. Column 1, line 65 through column 2, line 10, column 7, line 65 through column 6, line 20 and figure 7. The metal spraying must be done at high velocity. Column 6, lines 5-10. This embedding in the plastic to the metal below would "remove" the plastic, as it would be, at the least, pushed out of the way of the metal in the area of application.

Claim 2: the particles can be aluminum. Column 6, lines 1-25.

Claim 3: the substrate can comprise electrical conductor material. Column 4, lines 40-60 (layers 14, 16).

Claim 4: the substrate can be a flexible electrical circuit. See column 5, lines 25-30 showing the flexibility of composite film 10.

Rayburn teaches all the features of these claims except (1) the kinetic spraying and its features and (2) the mask and its features.

However, Tawfik teaches that when spraying metal particles into a substrate to be embedded, it is desirable to use either thermal spraying or cold gas dynamic spraying (=kinetic spraying). See paragraphs [0014], [0016], [0022], [0043] and [0049]. The use of cold gas dynamic spraying prevents problems from overheating during coating from occurring. Paragraphs [0022] and [0049].

Van Steenkiste '386 notes that kinetic spraying and cold gas dynamic spraying are equivalent. Column1, lines 15-25. Van Steenkiste '386 also provides a desirable method of kinetic spraying of metals. Column 1, lines 55-60. Particle sizes can be in excess of 100 microns, up to 106 microns. Column 2, lines 20-30 and column 5, lines 45-55. For spraying a supersonic nozzle having a converging region connected to a diverging region through a throat is provided. Figure 2 and column 3, lines 40-65. A flow of heated main gas is directed through the nozzle. Column 3, lines 30-40. The particles are entrained in the flow of the heated main gas and accelerated to a velocity sufficient to result in the particles impacting and adhering to the substrate. Column 1, line 55 through column 2, line 10. The particles can be aluminum. Column 5, lines 25-

30. The velocity can be greater than 1000 m/s. Column 1, lines 60-68. The gas temperature can be 650 degrees C. Column 1, lines 60-68.

Hathaway teaches that when coating a substrate with sprayed metal, such as when making electrical wiring, it is known to apply a mask to both sides of the substrate to provide a pattern to be sprayed. See column 3, lines 40-70 and column 4, lines 10-25.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Rayburn to use kinetic spraying as suggested by Tawfik in order to desirably embed particles in the plastic layer without overheating the substrate, because Rayburn teaches thermally spraying metal particles to be embedded in a plastic layer on a substrate, and Tawfik teaches that when spraying metal particles to be embedded, it is desirable to use kinetic spraying to replace thermal spraying in order to prevent overheating of the substrate. It would further have been obvious to modify Rayburn in view of Tawfik to use the kinetic spraying features taught by Van Steenkiste '386 with an expectation of providing a desirably kinetic sprayed coating, because Rayburn in view of Tawfik suggests using kinetic spraying to provide the sprayed metal and Van Steenkiste '386 provides a desirable form of kinetic spraying to apply metal particles. As to the further distance between the substrate and nozzle (claim 5) and traverse speed (claim 10), it would have been obvious to one of ordinary skill in the art to optimize the features when performing the process of Rayburn in view of Tawfik and Van Steenkiste '386, because Van Steenkiste '386 provides spraying

features for various sizes of particles and materials, and one would perform routine experimentation to optimize the positioning and speeds for the specific materials and purposes used. It would further have been obvious to modify Rayburn in view of Tawfik and Van Steenkiste '386 to use the mask as suggested by Hathaway in order to provide coating to the specifically desired areas, because Rayburn in view of Tawfik and Van Steenkiste '386 teach applying a sprayed metal to a substrate and Hathaway teaches that when applying sprayed metal to a substrate, it is desirable to use an applied mask when a specific area is desirable to be sprayed.

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rayburn in view of Tawfik , Van Steenkiste '386 and Hathaway as applied to claims 1-6 and 9-11 above, and further in view of Martyniak (US 4263341).

Rayburn in view of Tawfik , Van Steenkiste '386 and Hathaway teach all the features of this claim except the material of the mask.

However, Martyniak teaches that it is well known to use a mask of stainless steel, for example, when applying a sprayed metal coating to a substrate. Column 5, lines 5-50.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Rayburn in view of Tawfik , Van Steenkiste '386 and Hathaway to use a stainless steel mask as suggested by Martyniak with an expectation of providing a desirable mask for coating because Rayburn in view of Tawfik , Van

Steenkiste '386 and Hathaway suggest using a mask when metal spray coating and Marytniak teaches that a desirable mask for metal spray coating is made from stainless steel.

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rayburn in view of Tawfik , Van Steenkiste '386 and Hathaway as applied to claims 1-6 and 9-11 above, and further in view of Kashirin et al (US 6402050).

Rayburn in view of Tawfik , Van Steenkiste '386 and Hathaway teach all the features of this claim except entering the particles in the flow of gas at a point in the diverging region.

However, Kashirin teaches that in the art of cold gas dynamic spraying (kinetic spraying) it is desirable to provide the particles into the flow of gas at a point in the diverging region in order to reduce wear on the nozzle. Column 3, lines 1-25 and column 2, lines 1-20 and figure 1.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Rayburn in view of Tawfik , Van Steenkiste '386 and Hathaway to feed the particles into the diverging region as suggested by Kashirin with an expectation of providing a desirably less worn spray system because Rayburn in view of Tawfik , Van Steenkiste '386 and Hathaway suggest using a kinetic spraying process and Kashirin teaches when kinetic spraying it is desirable to provide the powder in the diverging region to prevent wear on the nozzle.

9. Claims 12-16 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rayburn (US 3731354) in view of Tawfik et al (US 2004/0101738) and Van Steenkiste (US 6623796) (hereinafter Van Steenkiste '796).

Rayburn teaches a method of spray coating a substrate covered by a plastic type material. Column 1, lines 50-60. Rayburn teaches making a rolled capacitor made from a two side metallized plastic dielectic material with thin coating of plastic material applied to head of the metallized layers for holding the capacitor together. Column 1, lines 50-60. After the capacitor is rolled, the plastic covered ends are sprayed with a high velocity spray of molten metal, preferably aluminum, which embeds itself in the plastic coatings between the metallized layers so as to contact the surface as well as the ends of the electrodes, but does not substantially penetrate the dielectric strip substrate. Column 1, line 65 through column 2, line 10, column 7, line 65 through column 6, line 20 and figure 7. The metal spraying must be done at high velocity. Column 6, lines 5-10. This embedding in the plastic to the metal below would "remove" the plastic, as it would be, at the least, pushed out of the way of the metal in the area of application.

Claim 13: the particles can be aluminum. Column 6, lines 1-25.

Claim 14: the substrate can comprise electrical conductor material. Column 4, lines 40-60 (layers 14, 16).

Claim 15: the substrate can be a flexible electrical circuit. See column 5, lines 25-30 showing the flexibility of composite film 10.

Rayburn teaches all the features of these claims except the kinetic spraying and its features.

However, Tawfik teaches that when spraying metal particles into a substrate to be embedded, it is desirable to use either thermal spraying or cold gas dynamic spraying (=kinetic spraying). See paragraphs [0014], [0016], [0022], [0043] and [0049]. The use of cold gas dynamic spraying prevents problems from overheating during coating from occurring. Paragraphs [0022] and [0049].

Van Steenkiste '796 notes that kinetic spraying and cold gas dynamic spraying are equivalent. Column 1, lines 20-30. Van Steenkiste '796 also provides a desirable method of kinetic spraying of metals. Column 2, lines 40-55. Particle sizes can be 250 microns in diameter. Column 2, lines 40-55. For spraying a supersonic nozzle having a converging region connected to a diverging region through a throat is provided. Figure 2 and column 3, line 45 through column 4, line 10. A flow of heated main gas is directed through the nozzle. Column 3, lines 40-55. The particles are entrained in the flow of the heated main gas and accelerated to a velocity sufficient to result in the particles impacting and adhering to the substrate. Column 2, lines 40-55. The particles can be metal. Column 4, lines 50-60. The velocity can be 300-1200 m/s. Column 5, lines 30-40. The gas temperature can be 1200 degrees F. Column 5, lines 50-55.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Rayburn to use kinetic spraying as suggested by Tawfik in order to desirably embed particles in the plastic layer without overheating the

substrate, because Rayburn teaches thermally spraying metal particles to be embedded in a plastic layer on a substrate, and Tawfik teaches that when spraying metal particles to be embedded, it is desirable to use kinetic spraying to replace thermal spraying in order to prevent overheating of the substrate. It would further have been obvious to modify Rayburn in view of Tawfik to use the kinetic spraying features taught by Van Steenkiste '796 with an expectation of providing a desirably kinetic sprayed coating, because Rayburn in view of Tawfik suggests using kinetic spraying to provide the sprayed metal and Van Steenkiste '796 provides a desirable form of kinetic spraying to apply metal particles. As to the further distance between the substrate and nozzle (claim 16) and traverse speed (claim 19), it would have been obvious to one of ordinary skill in the art to optimize the features when performing the process of Rayburn in view of Tawfik and Van Steenkiste '796, because Van Steenkiste '796 provides spraying features for various sizes of particles and materials, and one would perform routine experimentation to optimize the positioning and speeds for the specific materials and purposes used.

10. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rayburn in view of Tawfik and Van Steenkiste '796 as applied to claims 12-16 and 18-20 above, and further in view of Kashirin et al (US 6402050).

Rayburn in view of Tawfik and Van Steenkiste '796 teach all the features of this claim except entering the particles in the flow of gas at a point in the diverging region.

However, Kashirin teaches that in the art of cold gas dynamic spraying (kinetic spraying) it is desirable to provide the particles into the flow of gas at a point in the diverging region in order to reduce wear on the nozzle. Column 3, lines 1-25 and column 2, lines 1-20 and figure 1.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Rayburn in view of Tawfik and Van Steenkiste '796 to feed the particles into the diverging region as suggested by Kashirin with an expectation of providing a desirably less worn spray system because Rayburn in view of Tawfik and Van Steenkiste '796 suggest using a kinetic spraying process and Kashirin teaches when kinetic spraying it is desirable to provide the powder in the diverging region to prevent wear on the nozzle.

11. Claims 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rayburn in view of Tawfik and Van Steenkiste '796 as applied to claims 12-16 and 18-20 above, and further in view of Martyniak (US 4263341).

Rayburn in view of Tawfik and Van Steenkiste '796 teach all the features of these claims except the mask.

However, Martyniak teaches that it is well known to use a mask of stainless steel, for example, when applying a sprayed metal coating to a substrate to provide coating in a desired area. Column 5, lines 5-50.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Rayburn in view of Tawfik and Van Steenkiste '796 to use a stainless steel mask as suggested by Martyniak with an expectation of providing coating to specifically desired areas because Rayburn in view of Tawfik and Van Steenkiste '796 suggest applying a sprayed metal to a substrate and Marytniak teaches that when applying a sprayed metal to a substrate it is desirable to use an applied mask when specific areas are to be sprayed and that a desirable mask for metal spray coating is made from stainless steel.

12. Claims 1-6 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rayburn (US 3731354) in view of Tawfik et al (US 2004/0101738), Van Steenkiste (US 6623796) (hereinafter Van Steenkiste '796) and Hathaway (US 2599710).

Rayburn teaches a method of spray coating a substrate covered by a plastic type material. Column 1, lines 50-60. Rayburn teaches making a rolled capacitor made from a two side metallized plastic dielectic material with thin coating of plastic material applied to head of the metallized layers for holding the capacitor together. Column 1, lines 50-60. After the capacitor is rolled, the plastic covered ends are sprayed with a high velocity spray of molten metal, preferably aluminum, which embeds itself in the plastic coatings between the metallized layers so as to contact the surface as well as the ends of the electrodes, but does not substantially penetrate the dielectric strip substrate. Column 1, line 65 through column 2, line 10, column 7, line 65 through column 6, line 20

and figure 7. The metal spraying must be done at high velocity. Column 6, lines 5-10. This embedding in the plastic to the metal below would "remove" the plastic, as it would be, at the least, pushed out of the way of the metal in the area of application.

Claim 13: the particles can be aluminum. Column 6, lines 1-25.

Claim 14: the substrate can comprise electrical conductor material. Column 4, lines 40-60 (layers 14, 16).

Claim 15: the substrate can be a flexible electrical circuit. See column 5, lines 25-30 showing the flexibility of composite film 10.

Rayburn teaches all the features of these claims except the kinetic spraying and its features.

However, Tawfik teaches that when spraying metal particles into a substrate to be embedded, it is desirable to use either thermal spraying or cold gas dynamic spraying (=kinetic spraying). See paragraphs [0014], [0016], [0022], [0043] and [0049]. The use of cold gas dynamic spraying prevents problems from overheating during coating from occurring. Paragraphs [0022] and [0049].

Van Steenkiste '796 notes that kinetic spraying and cold gas dynamic spraying are equivalent. Column 1, lines 20-30. Van Steenkiste '796 also provides a desirable method of kinetic spraying of metals. Column 2, lines 40-55. Particle sizes can be 250 microns in diameter or less. Column 2, lines 40-55. For spraying a supersonic nozzle having a converging region connected to a diverging region through a throat is provided. Figure 2 and column 3, line 45 through column 4, line 10. A flow of heated

main gas is directed through the nozzle. Column 3, lines 40-55. The particles are entrained in the flow of the heated main gas and accelerated to a velocity sufficient to result in the particles impacting and adhering to the substrate. Column 2, lines 40-55. The particles can be metal. Column 4, lines 50-60. The velocity can be 300-1200 m/s. Column 5, lines 30-40. The gas temperature can be 1200 degrees F. Column 5, lines 50-55.

Hathaway teaches that when coating a substrate with sprayed metal, such as when making electrical wiring, it is known to apply a mask to both sides of the substrate to provide a pattern to be sprayed. See column 3, lines 40-70 and column 4, lines 10-25.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Rayburn to use kinetic spraying as suggested by Tawfik in order to desirably embed particles in the plastic layer without overheating the substrate, because Rayburn teaches thermally spraying metal particles to be embedded in a plastic layer on a substrate, and Tawfik teaches that when spraying metal particles to be embedded, it is desirable to use kinetic spraying to replace thermal spraying in order to prevent overheating of the substrate. It would further have been obvious to modify Rayburn in view of Tawfik to use the kinetic spraying features taught by Van Steenkiste '796 with an expectation of providing a desirably kinetic sprayed coating, because Rayburn in view of Tawfik suggests using kinetic spraying to provide the sprayed metal and Van Steenkiste '796 provides a desirable form of kinetic spraying to

apply metal particles. As to the further distance between the substrate and nozzle (claim 5) and traverse speed (claim 10), it would have been obvious to one of ordinary skill in the art to optimize the features when performing the process of Rayburn in view of Tawfik and Van Steenkiste '796, because Van Steenkiste '796 provides spraying features for various sizes of particles and materials, and one would perform routine experimentation to optimize the positioning and speeds for the specific materials and purposes used. It would further have been obvious to modify Rayburn in view of Tawfik and Van Steenkiste '796 to use the mask as suggested by Hathaway in order to provide coating to the specifically desired areas, because Rayburn in view of Tawfik and Van Steenkiste '386 teach applying a sprayed metal to a substrate and Hathaway teaches that when applying sprayed metal to a substrate, it is desirable to use an applied mask when a specific area is desirable to be sprayed.

13. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rayburn in view of Tawfik , Van Steenkiste '796 and Hathaway as applied to claims 1-6 and 9-11 above, and further in view of Kashirin et al (US 6402050).

Rayburn in view of Tawfik, Van Steenkiste '796 and Hathaway teach all the features of this claim except entering the particles in the flow of gas at a point in the diverging region.

However, Kashirin teaches that in the art of cold gas dynamic spraying (kinetic spraying) it is desirable to provide the particles into the flow of gas at a point in the diverging region in order to reduce wear on the nozzle. Column 3, lines 1-25 and column 2, lines 1-20 and figure 1.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Rayburn in view of Tawfik, Van Steenkiste '796 and Hathaway to feed the particles into the diverging region as suggested by Kashirin with an expectation of providing a desirably less worn spray system because Rayburn in view of Tawfik, Van Steenkiste '796 and Hathaway suggest using a kinetic spraying process and Kashirin teaches when kinetic spraying it is desirable to provide the powder in the diverging region to prevent wear on the nozzle.

14. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rayburn in view of Tawfik, Van Steenkiste '796 and Hathaway as applied to claims 1-6 and 9-11 above, and further in view of Martyniak (US 4263341).

Rayburn in view of Tawfik, Van Steenkiste '796 and Hathaway teach all the features of these claims except the material of the mask.

However, Martyniak teaches that it is well known to use a mask of stainless steel, for example, when applying a sprayed metal coating to a substrate to provide coating in a desired area. Column 5, lines 5-50.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Rayburn in view of Tawfik ,Van Steenkiste '796 and Hathaway to use a stainless steel mask as suggested by Martyniak with an expectation of providing a desirable mask for coating, because Rayburn in view of Tawfik ,Van Steenkiste '796 and Hathaway suggest applying a sprayed metal to a substrate using a mask and Marytniak teaches a desirable mask for metal spray coating is made from stainless steel.

Response to Arguments

15. Applicant's arguments filed March 14, 2005 have been fully considered but they are not persuasive.

(1) At pages 6-12 of the specification applicant argues that the Examiner has failed to point to any specific teachings, suggestions or motivations within the references themselves to combine the references and modify to make applicant's invention obvious, as is required. Applicant argues that, instead, the Examiner has taken applicant's invention and used it as a blueprint to find the cited references, using impermissible hindsight. According to applicant the references cannot be properly combined and even when combined do not make the present invention obvious.

Applicant then goes on to argue, as to the specific references, that Rayburn teaches using thermal spraying of molten aluminum to embed the aluminum in the plastic coatings, so as to contact the surface of the substrate, and that this thermal spraying is the

opposite of the kinetic method of applicant, and thus the teachings of Rayburn are inapplicable to the present invention and are irrelevant and teach away from the present invention. Furthermore, any removal of plastic is due to the high temperature of the molten metal. As to Tawfik, applicant argues that it teaches thermal spraying, and in passing mentions cold gas dynamic spraying, with no details provided. Even if Tawfik provides kinetic spraying when embedding as suggested by the Examiner, this is inapplicable to the present invention, because no particles are being embedded, rather they are removing the plastic type material. As to Van Steenkiste, applicant argues that it teaches at most coating a metal substrate with another metal and provides no reason to combine with the other references. As to Hathaway, applicant argues that it does not provide pressing a mask against a plastic coated substrate, which is not taught by Hathaway.

The Examiner has reviewed these arguments, however, the rejection is maintained. As to the combination of Rayburn, Tawfik, Van Steenkiste and Hathaway, the Examiner notes applicant's arguments as to propriety of combining the references. In response to applicant's argument that there is no suggestion to combine the references found within the references themselves, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5

USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). Thus, the reason to combine can be found in knowledge generally available to one of ordinary skill in the art. Furthermore, in response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). As to the references themselves, it is the combination of the references that provides the suggestion of the claimed invention. As discussed in the rejection above, Rayburn teaches spray coating a plastic covered metal with metal particles that are embedded in the plastic, to contact with the metal substrate, thus pushing the plastic out of the way, thus "removing" it from the area. While Rayburn teaches thermal spraying of molten metal rather than kinetic spray, Tawfik provides the suggestion that in the art it is known to substitute cold gas dynamic spray (kinetic spraying) for thermal spraying when spraying to embed particles in a substrate to provide the benefit of preventing overheating of the substrate. While Tawfik teaches a metal substrate, one of ordinary skill in the art would know that plastic would be subject to overheating as well, as plastic commonly has a lower melting/decomposing point than metal. As to the argument that particles are not "embedded" in the present

application, the Examiner notes that as discussed above, "embedding" provides "removal" within the meaning of the term. While Tawfik does not provide the details of exactly how kinetic spraying occurs, Van Steenkiste has been provided as to just this point. While Van Steenkiste provides coating a metal substrate, the mechanics of the spray process described would not be limited to a metal substrate, as the mechanics are in the spraying conditions to be such that bonding occurs on impact without melting of the particles in flight. Finally, as to the mask of Hathaway, this reference indicates the commonality of using a mask when spraying with metal so that the coating is only applied where desired. Rayburn teaches, for example, the desire to coat the edges of the capacitor, which would indicate the desire to coat a specific area. While Hathaway does not teach kinetic spraying or plastic coated substrate, this suggestion is provided by the other references, such as Tawfik which teaches the advantages of substituting kinetic spray coating for thermal spray coating and Rayburn teaching the plastic coated substrate (note that Hathaway teaches the surface of the substrate can be laminated phenolic or Bakelite – both polymer type materials). As to pressing the mask against the substrate, Hathaway teaches using a masking tape, for example, and one of ordinary skill in the art would clearly understand that masking tape would be applied and "pressed" to the surface so that the adhesive would impact the surface and connect and adhere the tape to the surface.

(2) At pages 12-13, applicant argues that as to the rejection of claim 7 further using Martyniak, that Martyniak also teaches the use of thermal spraying to directly

coat a metal substrate with a metal. The Examiner has reviewed these arguments, however the rejection is maintained. As to the coating of a metal substrate, the Examiner notes that the substrate is described as a thermoplastic. See column 4, lines 10-30. As to the thermal spraying, as discussed with regard to Hathaway above, the use of ~~thermal~~ kinetic spraying is suggested by Tawfik, which teaches the advantages of substituting kinetic spray coating for thermal spray coating.

(3) At page 13, applicant argues that as to the rejection of claim 8 further using Kashirin, that Kashirin does not cure the defects of the use of Rayburn, Tawfik, Van Steenkiste and Hathaway. The Examiner has reviewed these arguments, however the rejection is maintained. As discussed in (1) above, Rayburn, Tawfik, Van Steenkiste and Hathaway provides the invention of claim 1 as worded.

(4) At pages 13-14, applicant argues that as to the rejection of claims 12-16 and 18-20 using Rayburn, Tawfik and Van Steenkiste '796, that the combination cannot be made for the reasons given as to (1) above. Furthermore, as to Van Steenkiste '796, applicant argues that it only teaches particles of a diameter up to 250 microns in a kinetic spray process, and thus would not suggest using particles of 250 to 1400 microns in size. The Exaiminer has reviewed these arguments, however, the rejection is maintained. The combination of Rayburn, Tawfik and Van Steenkiste '796 remains suggested for the reasons given in (1) above, with Van Steenkiste '796 replacing the first Van Steenkiste reference (with the same reasons for combining). As to the particle size taught by Van Steenkiste '796, the diameter of Van Steenkiste can be 250 microns and thus provides a point in the range of

the claimed 250-1400 micron range. One point is all that is need to meet the requirements of the claims.

(5) At pages 14-15, applicant argues that as to the rejection of claim 17 further using Kashirin, that Kashirin does not cure the defects of the use of Rayburn, Tawfik and Van Steenkiste '796. The Examiner has reviewed these arguments, however the rejection is maintained. As discussed in (4) above, Rayburn, Tawfik and Van Steenkiste '796 provide the invention of claim 12 as worded.

(6) At page 15, applicant argues that as to the rejection of claims 21-22 using Martyniak, that Martyniak does not supplement the deficiencies of Rayburn, Tawfik and Van Steenkiste '796. The Examiner has reviewed these arguments, however the rejection is maintained. As discussed in (4) above, Rayburn, Tawfik and Van Steenkiste '796 provide the invention of claim 12 as worded. Also note the discussion in (2) as to the use of Martyniak.

(7) At pages 15-16, applicant argues that as to the rejection of claims 1-6 and 9-11 using Rayburn, Tawfik, Van Steenkiste '796 and Hathaway, that this rejection cannot be sustained for the reasons noted as to (1) above; and that similar analysis applies the further rejection of claims 7 and 8 using Van Steenkiste '796 rather than the first Van Steenkiste reference. The Exaiminer has reviewed these arguments, however, the rejection is maintained. The combination of Rayburn, Tawfik, Van Steenkiste '796 and Hathaway remains suggested for the reasons given in (1) above, with Van Steenkiste

'796 replacing the first Van Steenkiste reference (with the same reasons for combining). Also note the discussion in (2) and (3) above.

Conclusion

16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (571) 272-1413. The examiner can normally be reached on M-F(6:00-3:30) with the First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone numbers

for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and for After Final communications.

Other inquiries can be directed to the Tech Center 1700 telephone number at (571) 272-1700.

Furthermore, information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KATHERINE BAREFORD
PRIMARY EXAMINER